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abruptly into a slender acuminate appendage. — Collected by C. & E. Seler, near Xochicato, Cuernavaca, Mexico, December, 1887, no. 410, also near the Hacienda S. Gaspar in the same region, 18 December, 1887, no. 317. The affinity of this species appears to be with *D. grandiflora*, DC., *D. serratifolia*, DC., *D. integrifolia*, Gray, and *D. squamosa*, Gray. From all these it is readily distinguished by its glandless involucre with larger herbaceous outer scales. Type specimens are preserved in the Royal Botanical Museum, Berlin.

Lygodesmia ramosissima. Much branched from a perennial base; branches striate-angled, glabrous, somewhat junciform, not spinescent: leaves linear to subulate-linear, 0.5 to 7 cm. long, entire or remotely denticulate, occasionally with more conspicuously spreading teeth, glabrous: heads 5–6-flowered, terminating the ultimate branchlets on either short or elongated peduncles: involucre 2 to 2.3 cm. long, the outer calyculate bracts ciliate, the inner bordered by a hyaline margin and bearing near the apex a keel-like appendage: mature achenes subterete, smooth and glabrous, about 1.5 cm. long; pappus nearly or quite equalling the achenes, tawny. — *Lygodesmia juncea*, Gray, Pl. Wright. i. 129, not Don. — Collected by Charles Wright on the expedition from western Texas to El Paso, prairies of the Pecos River, August, 1849, no. 417; by C. G. Pringle on plains near the city of Chihuahua, Mexico, 18 August, 1885, no. 578 and by E. W. Nelson, between Ramos and Inde, Durango, 11 to 14 August, 1898, no. 4710. In habit *L. ramosissima* resembles most closely *L. juncea*, Don, but from this species it is readily distinguished by the size of the heads. From *L. aphylla*, DC., and its variety, our plant is at once separated by the copiously branched stems.

II. — SYNOPSES OF THE GENERA JAEGERIA AND RUSSELIA.

BY B. L. ROBINSON.

THE GENUS JAEGERIA.

THE small helianthoid genus *Jaegeria*, inhabiting muddy shores and shallow pools of tropical America, is exceedingly well marked by its non-imbricated involucre bracts. These are similar to each other in form and are equal in number to the rays, in fact each stands just in front of

a ray and envelops the ray-achene by its thin infolded usually ciliate alar portions. The achenes are glabrous and crowned with a shallow callous cup, but otherwise pappusless.

Although thus clearly marked, the species of this genus have from habitual similarities been much confused with those of *Sabazia*, *Galinsoga*, *Melampodium*, and *Spilanthes*. The following synopsis, drawn up during the study of the two new species here proposed, may therefore be found useful in showing the present status of the group.

- * Heads axillary, pedunculate, racemose, relatively large (including the rays 1.6 to 2 cm. in diameter): rays about 12, conspicuous, pale yellow with more or less deep roseate tinge: scales of the involucre ciliate, otherwise glabrous: weak aquatic essentially glabrous perennials.

+ Leaves slender-petioled.

1. *J. petiolaris*. *Sabazia glabra*, Wats. Proc. Am. Acad. xxiii. 277. — Shallow water, pine plains, base of the Sierra Madre, *Pringle*, no. 1295. The involute involucre scales enveloping the ray achenes clearly show this plant a *Jaegeria*. The transfer of Dr. Watson's name *glabra* to *Jaegeria* is rendered undesirable by the varietal use of this designation under *J. hirta* by Mr. Baker in the Flora Brasiliensis as mentioned below.

+ + Leaves sessile, amplexicaul.

2. *J. purpurascens*. Decumbent stem simple or sparingly branched, purplish, glabrous, leafy: leaves oblong-lanceolate, acute, sessile by a clasping base, entire, glabrous, 1.4 to 2 cm. long, 3 to 4 mm. wide: peduncles terete, purplish, 3 to 4.2 cm. long, puberulent near the summit, borne in the upper axils: disk 8 mm. in diameter, hemispherical, at length somewhat conical: rays 11 to 13, linear or narrowly oblong, purple, 6 mm. long: bracts of the open flattish involucre uniseriate, ovate, acute, strongly ciliate at the broadest involute part, green and glabrous dorsally: disk-flowers numerous; corollas pale yellow, 2 mm. long, glabrous except for a tomentulose ring at the base of the tube: achenes glabrous, 1.7 mm. long, crowned with a narrow callous ring otherwise calvous: ligules pale-yellow, shading to deep purple at the tip, 5 mm. long, 1.8 mm. broad. — Collected in shallow water near Durango, Mexico, by Dr. Edward Palmer, November, 1896, no. 805 (distributed as *Sabazia glabra*).

- * * Heads solitary and axillary (*J. prorepens*) or more often terminal in the forks of the stem, or, when several, borne in leafy cymes: more or less pubescent plants of muddy shores or drier habitat: rays yellow or white.

+- Heads relatively large, including the well-exserted conspicuous yellow rays, 1.2 to 1.5 cm. broad.

++ Main stem prostrate, rooting at the nodes; branches ascending, few-headed: bracts foliar.

3. *J. MACROCEPHALA*, Less. Syn. Gen. Comp. 223, & Linnaea, ix. 270. — Jalapa, Mexico, *Schiede & Deppe, C. L. Smith*, nos. 1624, 1835; brook-sides near Patzcuaro, Michoacan, *Pringle*, no. 4166.

++ ++ Main stem erect from a short decumbent base: heads many: bracts reduced.

4. *J. PEDUNCULATA*, Hook. & Arn. Bot. Beech. 299. — Jalisco, *Beechey, Palmer*, no. 427, acc. to Gray, Proc. Am. Acad. xxii. 424; *Pringle*, no. 1772; also *Palmer*, no. 47 in part (*Spilanthes sessilis*, Gray, l. c. 428, not Hemsl.). The identity of Mr. Pringle's no. 1772 with the type specimen at Kew has been kindly verified by Mr. W. B. Hemsley.

+ + Heads considerably smaller; rays inconspicuous, scarcely exerted, yellow or white: pubescent or hirsute annuals.

++ Dwarf but not creeping, very slender; pubescence scanty: leaves small, ovate, not at all clasping at the base.

5. *J. MNIOIDES*, HBK. Nov. Gen. & Spec. iv. 278, t. 400. The only plant in herb. Gray corresponding at all satisfactorily to the plate and description of this Michoacan species is some rather poor material collected in Costa Rica by Oersted. In it the stems are very slender, simple or sub-simple, and erect, while the leaves are small and truly ovate, subsessile, but in no sense clasping. Kunth describes the rays as yellow. It is not unlikely that this original species of the genus was only a starved condition of the common *J. hirta*, Less.

++ ++ Tall, inclining to be repent at the base: leaves ovate, acutish: peduncles filiform, several times as long as the heads: pubescence usually copious and spreading.

6. *J. HIRTA*, Less. Syn. Gen. Comp. 223. *J. repens*, DC. Prodr. v. 544. *Acmella hirta*, Lag. Nov. Gen. & Spec. 31; Less. Linnaea, v. 153. *Melampodium brachyglossum*, J. D. Smith, Bot. Gaz. xiii. 74. *Spilanthes sessilifolia*, Coulter in J. Donnell Smith, Enum. Pl. Guat. i. 23, iii. 43. *Jaegeria calva*, Wats., a binomial needlessly published by Rusby, Mem. Torr. Club, iii. no. 3, 62.*

* Dr. Watson was quite right in regarding this plant as the characteristic *calvosa* part of Schultz's mixed type of the unpublished *Galinsoga calva*, as the examination of Mandon's no. 80 (a portion of which has been kindly forwarded from the Kew Herbarium for comparison) clearly shows. Dr. Rusby's publication of another *Galinsoga calva*, founded on a pappus-bearing plant (which in the well known confusion of the Mandon numbers may or may not have had any relation to

This is evidently the commonest and most widely distributed species of the genus extending from western Mexico to Tropical Brazil. It is highly variable in stature, foliage, and degree of pubescence; yet floral or even vegetative characters for a satisfactory segregation appear to be lacking. Var. *GLABRA*, Baker, in Mart. Fl. Bras. vi. pt. 3, 167, is, to judge from its first mentioned type (Mandon's no. 80), merely a smoother not an altogether glabrous form as its description would imply.

++ ++ Dwarf, not creeping, freely branched, smoothish: leaves, at least the upper ones, obovate or oblong, sessile by a narrowed but still somewhat clasping base: peduncles short or none.

7. *J. DISCOIDEA*, Klatt, Arbeit. des Hamb. Botan. Mus. 1893, p. 2 of reprint. Heads small (not discoid even in Klatt's type specimen!), short-peduncled or sessile: rays small although slightly exserted, white or pale yellow. — *Pringle*, no. 4279 from the Sierra de las Cruces, State of Mexico (type), also *Pringle*, no. 7349, *Bourgeau*, no. 1232, and *Schaffner*, no. 286, all collected in or near the Valley of Mexico. Perhaps too near *J. hirta*. Klatt's ill-chosen name must be retained with regret.

++ ++ ++ Low, creeping: leaves rounded at the base: Galapagos Islands.

8. *J. PROREPENS*, Hook. f. Trans. Linn. Soc. xx. 214. — James Island, *Darwin*.

Schultz's type) appears to me a mistaken fidelity to an indefinite and inappropriate specific name, especially when Dr. Rusby explains so carefully that he himself and not Schultz should stand as authority for the pappus-bearing *G. calva*. *Jaegeria calva*, as applied by Dr. Watson, was merely an herbarium name, resting upon an obvious clerical error. Far from being "astonishing," slips of this sort appear to be tolerably frequent in manuscript work of even the most careful botanists. The thoughtless publication of such mistaken names, however, merely adds to the mass of an already burdensome synonymy. It may be worth while to note in passing that Dr. Rusby's name *G. calva* is not only inappropriate and misleading, but that according to the Rochester Code it has no right to stand. *G. calva*, Sch. Bip., is not, as Dr. Rusby maintains, a *nomen nudum*. It is clearly given (as Dr. Rusby admits) by Baker in the Fl. Bras. vi. pt. 3, 167 (1884) in the synonymy of *Jaegeria hirta*, var. *glabra*. Its status is thereby established, and it is impossible to deny its publication, since it has been used in print together with a description, defining synonymy, and the citation of Mandon's no. 80, one of the types originally mentioned by Schultz. But as thus defined it was applied to a *Jaegeria*. Whether we write *Galinsoga calva*, Sch. Bip., or *G. calva*, Baker, in our synonymy of *Jaegeria hirta*, the combination *Galinsoga calva* has been a published binomial since 1884, and Dr. Rusby's *G. calva*, applied to a different plant, is thus a later homonym which a rational application of the Rochester rules would discard. It is to be hoped that if any one feels impelled, on account of the "doctrine of homonyms," to assign a new name to Dr. Rusby's species, the choice may be more felicitous.

* * * Heads small, discoid : branched pubescent annual : Galapagos Islands.

9. *J. GRACILIS*, Hook. f. l. c. 213. — Charles Island, *Darwin*.

Doubtful species.

J. BELLIDIOIDES, Spreng. Syst. iii. 591, of Uruguay, is unrecognized and probably, like nearly all of the other species referred by Sprengel to *Jaegeria*, belongs to some other genus.

THE GENUS RUSSELIA.

Considerable recently acquired material of *Russelia* seems to show Bentham's extreme reduction of the species ill-advised. At least a dozen may be recognized with advantage. The following provisional key may prove of assistance in identifying the members of this confused genus.

* Stems and branches sharply 4-angled, the angles bearing ciliated wings : peduncles opposite, axillary, solitary. S. America.

1. *R. ALATA*, Cham. & Schlecht. Linnaea, iii. 3 (1828) ; Schmidt in Mart. Fl. Bras. viii. pt. 1, 269, t. 44, f. II. — Tropical Brazil, *Sellow* & *Riedel*.

** Stems and branches sharply angled not winged ; the angles prominent, often thickened ; the intervening areas flat or concave.

+ Juncoid, excessively branched : peduncles filiform, 1-2 (-3)-flowered, much exceeding the subtending bracts.

2. *R. EQUISETIFORMIS*, Schlecht. & Cham. Linnaea, vi. 377 (1831). *R. juncea*, Zucc. Flora, 1832, II. Beibl. 99 (1832), is only a large flowered form of this species. The type of *R. equisetiformis* has been examined by Mr. J. M. Greenman in Berlin and proves to have corollas which vary from 1 to 2 cm. in length, thus invalidating the chief distinction between the species, a fact also noted by Dr. Loesener, Bull. Boiss. ii. 562.

+ - Peduncles short, the primary ones never equalling the subtending leaf-like bracts, usually several-many-flowered.

++ Leaves entire, subcoriaceous, lucid.

3. *R. SUBCORIACEA*, Robinson & Seaton, Proc. Am. Acad. xxviii. 113. — Tamasopo Cañon, San Luis Potosi, Mexico, *Pringle*, no. 5086.

++ ++ Leaves serrate : calyx-lobes oblong-lanceolate, gradually attenuate, not at all subulate at the tip : flowers 2 to 2.4 cm. in length.

4. *R. jaliscensis*. Copiously branched : stems and branches sharply

quadrangular, glabrous: leaves opposite, thin, ovate to ovate-lanceolate, acute, attenuate at the base, covered on both surfaces with a sparse more or less deciduous pubescence and resinous(?) punctation, ciliolate at least when young, sharply serrate; petioles 2 mm. long; blade about 2 cm. long, half as broad: floriferous branches leafy-bracted; bracts somewhat obovate, cuneate at the base; peduncles 2-flowered; pedicels slender, 4 mm. in length: calyx herbaceous, 6 mm. long, divided nearly to the base; segments oblong-lanceolate, gradually and evenly narrowed almost from the base to the flat acute but not at all subulate tip: corolla scarlet, 2.4 cm. long, externally glabrous, internally pubescent near the base and bearded along a ventral line; lobes orbicular, spreading: capsule ovate, stramineous, 6 mm. long. — *R. sarmentosa*, Gray in Wats. Proc. Am. Acad. xxi. 434, not Jacq. — Collected in Jalisco in barrancas near Guadalajara by Dr. Edward Palmer, June, 1886, no. 126, and by C. G. Pringle, June, 1889, no. 2568. Types in herb. Gray. This species differs from any other known to the author in the shape of its calyx-lobes.

++ ++ ++ Leaves serrate: calyx-lobes broadly ovate, acuminate to subulate tips.

= Stems and branches chiefly 4-angled, glabrous or glabrate.

a. Leaves not cordate.

5. *R. SARMENTOSA*, Jacq. Enum. Pl. Carib. 25 (1762) nomen, Stirp. Select. Am. 178 (1763), t. 113.

b. Leaves cordate.

6. *R. FLORIBUNDA*, HBK. Nov. Gen. & Spec. ii. 359 (1817). Doubtless represented by Palmer's no. 252 from near Acapulco.

7. *R. SYRINGAEFOLIA*, Cham. & Schlecht. Linnaea, vi. 376 (1831).

= = Stems and branches 6-many-angled.

a. Stems glabrous or soon glabrate.

8. *R. VERTICILLATA*, HBK. Nov. Gen. & Spec. ii. 360 (1817).

b. Stems tomentulose or pubescent.

1. Leaves small.

9. *R. POLYEDRA*, Zucc. Abh. Akad. Muench. ii. 328 (1832-36). *R. retrorsa*, Greene, Pittonia, i. 176, is hardly distinct.

2. Leaves large.

10. *R. TERNIFOLIA*, HBK. Nov. Gen. & Spec. ii. 359 (1817).

* * * Stems sub-terete, merely striate-angulate.

- + Branches of the inflorescence pseudo-racemose, elongated, loosely flowered: leaves large, thickish, veiny, tomentulose beneath.

11. *R. ROTUNDIFOLIA*, Cav. Icon. v. 9 (1799), t. 415. — Near *Aca-pulco*, Mexico. Dr. Palmer's no. 509 must be of this species.

- + + Branches of the glomerate inflorescence cymose, many-flowered: leaves thin, acute or acutish: stem glabrous.

12. *R. MULTIFLORA*, Sims, Bot. Mag. t. 1528 (1813). — *R. paniculata*, Mart. & Gal. Bull. Acad. Brux. xii. pt. 2. 19 (1845), appears to be merely a verticillate-leaved form of this species.

- + + + Inflorescences cymose, very short, opposite on prolonged branches: flowers very small: leaves bullate, obtuse: stem pubescent.

13. *R. tepicensis*. Probably suffruticose; stems subterete, striate-angulate with many fine ribs, subappressed-pubescent, internodes considerably exceeding the ternate broadly ovate cordate petiolate obtuse crenate-dentate leaves; these membranaceous, glabrous and with impressed veins, strigillose on the veins and resinous-punctate on the surface beneath, 3 cm. long, 2.4 cm. broad; petioles 3 mm. long, appressed-pubescent: floriferous branches (1 to 1.5 dm. long) mostly verticillate toward the ends of the stems: bracts ovate, petiolate, crenulate, small but exceeding the short peduncles (2 to 3 mm. in length); pedicels and subulate bractlets pubescent: calyx-lobes ovate, acuminate to slender recurved tips, puberulent near the middle, thin at the margin, 2 mm. long: corolla 6 to 7 mm. long, bearded near the base within, externally glabrous; lobes spreading: capsule ovoid, nearly spherical, glabrous, lucid, small, 3 to 4 mm. in length, slightly grooved between the carpels; these slightly carinate dorsally. — Collected at Zopelote, Tepic, Mexico, February, 1895, altitude 600 to 900 m., by Frank H. Lamb, no. 578. Type in herb. Gray. This species is distinguished from *R. sarmentosa*, Jacq., by its subterete pubescent stems, ternate subcordate leaves, and very small flowers. *R. rotundifolia*, Cav. and *R. multiflora*, Sims, the only other species with subterete stems known to the writer, have much larger inflorescences and also differ in the form and pubescence of the leaves.